What are Tiny Homes?
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What are pocket neighborhoods?
What is micro housing / micro condos?
Who is living in them?

- Millennials
- Minimalists
- Active adults
- Retirees who are downsizing
- Anyone seeking intentional community (especially regarding pocket neighborhoods)
Monroe, GA, Seattle, WA and Portland, are examples of cities that are encouraging the utilization of Tiny Homes.

They are encountering building codes needing adaptation to make Tiny Home living feasible and are doing so alongside their City officials in a positive manner to ensure Tiny Home living is well-received.
Policy that affects Tiny Homes

- Land Subdivision
- Zoning
- Building Code
- Housing Codes
- Fair Housing ADA
- State fire codes
- Industrialized Buildings
- HUD Regulations on mobile homes
- Environmental Impact
Land Subdivision
Zoning
Housing Codes
Freestanding Individual Unit
Plan for Resiliency
Plan for Resiliency
Be Resourceful
Why do you need personal space?
Living With Others

...How to keep all parties alive
Design Imperatives

Choice and Control of Place
Design Imperatives

Acoustics
Design Imperative - Solar Orientation
Psychological and Biological Wellbeing
Technical Considerations
Overview

- Heat transfer and loads
- Design considerations
- Energy analysis
- Results
Heat Transfer

• Heating and Cooling Load
  – Latent and sensible
  – Humidity/moisture
  – Ratio of envelope to volume

• Design Considerations
  – More windows = higher cooling load
  – More insulation = less heat loss
  – Smaller volume = more air changes
  – Electric vs Gas
Cooling Load Components

- Roof
- Partition wall
- Ceiling lights
- Equipment
- Exterior wall
- Glass solar
- Glass conduction
- Infiltration
- People
- Floor
HERS Rating-Reporting

Fuel Summary

Property
443 Elm St
Atlanta, GA

Organization
Source
Jenna Dryer
Builder

HERS
Projected Rating
1/12/2015
Raker St

Annual Energy Cost $/yr
Electric 27.7

Annual End-Use Cost $/yr
Heating 46
Cooling 21
Water Heating 125
Lights & Appliances 189
Photovoltaics 0
Service Charge 120
Total 497

Annual End-Use Consumption kWh
Heating (kWh) 756
Cooling (kWh) 381
Water Heating (kWh) 22.46
Lights & Appliances (kWh) 339
Total (kWh) 1376

Annual Energy Demands kw
Heating 2.1
Cooling 0.3
Water Heating (Winter Peak) 0.4
Water Heating (Summer Peak) 0.1
Lights & Appliances (Winter Peak) 0.3
Lights & Appliances (Summer Peak) 0.5
Total Winter Peak 2.8
Total Summer Peak 1.2

Utility Rates
Electricity GA Power Updated****
The Tiny House Behind the Energy Model

12’ x 32’
Recommendation - DIY baseboard

Through the Wall AC with Baseboard Hydronic Heat (integrated heat and water)

w/ instant gas water heater
HERS 74, $619 annually

OR… electric hydronic baseboard option
Recommendation-DIY Fireplace

Through the Wall AC with Direct Vent Heat

w/ instant gas water heater
HERS 80, $646 annually

w/ small storage electric water heater
HERS 89, $689 annually
Recommendation - Hotel option

Heat Pump PTAC

w/ small storage electric water heater
HERS 76, $527 annually

w/ instant gas water heater
HERS 68, $560 annually
Ductless Mini-Split Heat Pump

w/ small storage electric water heater
HERS 67, $498 annually

w/ instant gas water heater
HERS 59, $530 annually

Recommendation—Professional installation
Next Steps

- Renewable energy and sustainability
  - Rainwater harvesting
  - Power Generation/Photovoltaic Panels
  - Solar hot water heating
- Example using “Professional Recommendation”
  - Consume ~6,800 kwh
  - Roughly, this would require a 5.65 (5-6) kw array
## Feasibility

<table>
<thead>
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<th>Mechanicsville</th>
<th>Peoplestown</th>
<th>Riverside</th>
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<tbody>
<tr>
<td>Lot size (sf)</td>
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<td>Elec Meter Box</td>
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<td>Difference/Equity</td>
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<td>% Equity</td>
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<td>Lot/Value Ratio</td>
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Findings:
Accessory Dwelling Units

- Many cities have already approved ADUs
- Portland became ADU-friendly by relaxing existing regulations and waiving their System Development Charges (the fee for buying into the existing infrastructure of water, transportation, etc.)
- Seattle requires the ownership of land before an individual is granted a building permit for an ADU or detached ADU
Findings:
Tiny House / Cottage Communities

Seattle, WA: Multiple developments made possible thanks to the adoption of the Cottage Housing Development Code in 1995 when most cities didn't have single-family land use codes that would allow for the visionary pocket neighborhoods.

Atlanta, GA: Lampkin Street Cottages
Findings:
Lampkin St Cottages
Findings:
*Lampkin St Cottages*
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*Lampkin St Cottages*
Findings:  
*Industrialized Buildings*

- The production of modular materials must comply with State construction codes, but the implementation (zoning, foundation, utilities hook-ups, etc.) must comply with local construction codes
- Pre-approved materials
- Less time spent with on-site inspections
- Currently 21 modular factories in GA – idle but ready to start up again
Findings:
Tiny Houses in Parking Decks

Many parking decks are expensively-built (at $35-50,000 per space) and are under-utilized, thus leading to great potential for housing.

Atlanta’s SCAD Pads: “Why build in a garage? Overcrowded cities are struggling to find places to build affordable housing, and since fewer and fewer people are driving cars, maybe it’s a natural step. Already, most parking garages are only used about half of the time, and they tend to be located near downtown areas, exactly where many people want to live.”